IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: Kuo, Chi-Hsiang

Serial No.: 10/624,775

Filed: July 21, 2003

For: **Method of Selecting Laser Beam In an Optical Disk Drive**

Confirmation No. 6780

Group Art Unit: 2656
Examiner: Lamb, Christopher Ray

TKHR Docket No.: 251706-1030
Sundial Ref. US1016PA

AMENDMENT AND RESPONSE TO OFFICE ACTION

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Office Action mailed on March 8, 2006 has been carefully considered. In response thereto, please enter the following amendments and consider the following remarks.

CLAIM AMENDMENTS:

Please amend claims 3 and 5 so that a complete set of the pending claims will read as follows:

1-2. (Canceled).

3. (Currently Amended) A method of selecting laser beam in an optical disk drive, wherein either CD laser beam or DVD laser beam is selected to read data from an optical disk, the method comprising the steps of:

using the CD laser beam to illuminate the optical disk to obtain a memory capacity of the optical disk;

determining if the memory capacity is not larger than a standard memory capacity; and

remaining ~~using~~ the CD laser beam to read data from the optical disk if the memory capacity is not larger than the standard capacity, and selecting ~~using~~ the DVD laser beam to read data from the optical disk if the memory capacity is larger than the standard capacity.

4. (Original) The method according to claim 3, wherein after the step of determining if the memory capacity is not larger than the standard capacity, the method further comprises:

using the DVD laser beam to read the optical disk and generate a tracking error signal if the memory capacity is larger than the standard capacity;

determining if the tracking error signal is correct; and

using the DVD laser beam to read data from the optical disk if the tracking error signal is correct, and ending the method if the tracking error signal is incorrect.

5. (Currently Amended) A method of selecting laser beam in an optical disk drive, wherein either a first laser beam or a second laser beam is selected to read data from an optical disk, the method comprising the steps of:

using the first laser beam to read the optical disk to generate a first testing result;

determining if the first testing result is normal; and

remaining ~~using~~ the first laser beam to read data from the optical disk if the first testing result is normal, and selecting ~~using~~ the second laser beam to read data from the optical disk if the first testing result is abnormal.

6-8. (Canceled)

9. (Original) The method according to claim 5, wherein the first testing result comprises a memory capacity of the optical disk.

10. (Original) The method according to claim 9, wherein the step of determining if the first testing result is normal further comprises: determining if the memory capacity is not larger than a standard memory capacity.

11. (Original) The method according to claim 10, wherein the first laser beam is used to read data from the optical disk if the memory capacity is not larger than the standard capacity.

12. (Original) The method according to claim 10, wherein the second laser beam is used to read data from the optical disk if the memory capacity is larger than the standard capacity.

13. (Original) The method according to claim 5, wherein the step of using the second laser beam to read the optical disk, if the first testing result is abnormal, further comprises:

using the second laser beam to read the optical disk and generate a second tracking error signal;

determining if the second tracking error signal is correct; and

using the second laser beam to read data from the optical disk if the second tracking error signal is correct, and ending the method if the second tracking error signal is incorrect.

14. (Original) The method according to claim 5, wherein the wavelength of the second laser beam is smaller than the wavelength of the first laser beam.

15. (Original) The method according to claim 14, wherein the first laser beam is CD laser beam.

16. (Original) The method according to claim 14, wherein the second laser beam is DVD laser beam.

17. (Original) The method according to claim 5, wherein the wavelength of the second laser beam is larger than the wavelength of the first laser beam.

18. (Original) The method according to claim 17, wherein the first laser beam is DVD laser beam.

19. (Original) The method according to claim 17, wherein the second laser beam is CD laser beam.

20. (Original) The method according to claim 5, wherein the optical disk drive is capable of reading CD and DVD optical disks.

REMARKS

The Examiner's Action mailed on March 8, 2006 has been received and its contents carefully considered. In this Amendment, Applicant has canceled claims 1-2 and 6-8, and has amended claims 3 and 5 to more specifically define certain embodiments of the invention. No new matter has been added to the application by this amendment. Claims 3 and 5 are independent claims. Claims 3-5 and 9-20 are now pending in the application. For at least the following reasons, it is submitted that this application is in condition for allowance.

Election/ Restriction

Applicant has made a provisional election and appreciates the Examiner's consideration on telephone meeting on February 24, 2006. The provisional election was made without traverse to prosecute the invention of Species II, claims 3-4 and 9-12. Claims 1-2 and 6-8 were withdrawn by the Examiner. Accordingly, Applicant has canceled these claims herein.

Claim Rejections under 35 USC 102

Claims 5, 9-10 and 17-20 are rejected under 35 U.S.C. 102(b) as allegedly anticipated by Hirose (U.S. Patent 6,411,577). The rejection is respectfully traversed for at least the following reasons.

It is well settled that a reference may anticipate a claim within the purview of 35 USC 102 only if all the features and all the relationships recited in the claim are taught by the reference structure either by clear disclosure or under the principle of inherency.

In rejecting claim 5, the Examiner alleged that all the features of the claimed embodiment are anticipated by Hirose. Hirose discloses a method of selecting laser beam in an optical disk drive (column 1, lines 44-51), wherein either a first laser beam or a second laser beam is selected

to read data from an optical disk (column 1, lines 44-51), the method comprising the steps of: using the first laser beam to read the optical disk to generate a first testing result (column 1, line 61 to column 2, line 13); determining if the first testing result is normal (column 8, lines 34-36); and using the first laser beam to read data from the optical disk if the first testing result is normal, and using the second laser beam to read data from the optical disk if the first testing result is abnormal (Fig. 6, step S22).

In contrast, Applicant's independent claim 5, as amended, defines:

> *a method of selecting laser beam in an optical disk drive, wherein either a first laser beam or a second laser sbeam is selected to read data from an optical disk, the method comprising the steps of:*
> *using the first laser beam to read the optical disk to generate a first testing result;*
> *determining if the first testing result is normal; and*
> ***remaining the first laser beam** to read data from the optical disk **if the first testing result is normal**, and **selecting the second laser beam** to read data from the optical disk **if the first testing result is abnormal**.*

(*Emphasis added*)

As defined in claim 5, the claimed embodiment includes a method of selecting laser beam in an optical disk drive. The method comprises the steps of "using the first laser beam to read the optical disk first" and "**remaining the first laser beam** to read data from the optical disk **if the first testing result is normal**, and **selecting the second laser beam** to read data from the optical disk **if the first testing result is abnormal**". The present method of selecting laser beam in an optical disk drive can be applied to read a variety of CDs, such as CD-like optical disks, which have track size between CD track pitch and DVD track pitch. That is, the present method can be used not only for reading specific kind of optical disk, such as CD or DVD, but also other kind of optical disks, such as CD-like optical disks. Furthermore, the claimed embodiment defines that **the original used laser beam is retained if the first testing result is normal**. The

laser beam does not need to be changed to the second laser beam until the first testing result is determined to be abnormal.

In comparison, Hirose discloses a method for discrimination between optical disks of different types, such as CD or DVD. Hirose's method is used for discrimination between optical disks of different types, and is not used for selecting laser beam in an optical disk drive. As shown in Figs. 6-8, Hirose's process cannot be applied to CD-like optical disks, which have track size between CD track pitch and DVD track pitch. If a CD-like optical disk is located in Hirose's system, the discrimination result – neither CD nor DVD – would be confused. In addition, Hirose does not disclose that **the original used laser beam is retained if the first testing result is normal**. Further, Hirose does not disclose that **the laser beam should be changed to the other laser beam if the first testing result is abnormal**. Instead, Hirose discloses that the optical disk is identified as CD if the first testing result is normal and the optical disk is identified as DVD if the first testing result is abnormal, as shown in Figs. 6-7. According the foregoing description, the method recited in Applicant's claim 5 patently defines over the disclosure of Hirose, as the two are substantially different.

As such, the claimed method is not disclosed (nor is it taught) by Hirose. Therefore, the rejection of claim 5 should be withdrawn. Moreover, since claims 9-10 and 17-20 depend from claim 5, claims 9-10 and 17-20 are not anticipated or rendered obvious by Hirose. Accordingly, the rejection of claims 5, 9-10 and 17-20 should be withdrawn.

Claim Rejections under 35 USC 103

Claims 3-4 and 11-16 were rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Hirose, as applied to claim 5 above.

Regarding claim 3, the Office Action indicated that Hirose discloses a method of selecting laser beam in an optical disk drive (column 1, lines 44-51), wherein either CD laser beam or DVD laser beam is selected to read data from an optical disk (column 1, lines 30-37), the method comprising the steps of: using a laser beam to illuminate the optical disk to obtain a memory capacity of the optical disk (column 1, line 60 to column 2, line 13; Hirose specifically refers to obtaining the recording density of the optical disk, but obtaining the recording density inherently obtains the memory capacity and vice versa). Determining if the memory capacity is not larger than a standard memory capacity (column 8, lines 31-34; where again density is equivalent to capacity); and using the CD laser beam to read data from the optical disk if the memory capacity is not larger than the standard capacity (column 8, lines 31-34), and using the DVD laser beam to read data from the optical disk if the memory capacity is larger than the standard capacity (column 8, lines 34-39). Also, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hirose to include using a CD laser beam to illuminate the optical disk to obtain a memory capacity of the optical disk.

In contrast, Applicant's independent claim 3, as amended, defines:

> *a method of selecting laser beam in an optical disk drive, wherein either CD laser beam or DVD laser beam is selected to read data from an optical disk, the method comprising the steps of:*
>
> *using the CD laser beam to illuminate the optical disk to obtain a memory capacity of the optical disk;*
>
> *determining if the memory capacity is not larger than a standard memory capacity, and the CD laser beam being selected to read data from the optical disk; and*
>
> ***remaining the CD laser beam** to read data from the optical disk **if the memory capacity is not larger than the standard capacity**, and **selecting the DVD laser beam** to read data from the optical disk **if the memory capacity is larger than the standard capacity**.*

(*Emphasis added*)

As recited in claim 3, the claimed embodiment defines a method of selecting laser beam in an optical disk drive. The method comprises the steps of "using the CD laser beam to read the

optical disk first" and "**remaining the CD laser beam** to read data from the optical disk **if the memory capacity is not larger than the standard capacity**, and **selecting the DVD laser beam** to read data from the optical disk **if the memory capacity is larger than the standard capacity**". The present method of selecting laser beam in an optical disk drive can be applied to read a variety of CDs, such as CD-like optical disks, which have track size between CD track pitch and DVD track pitch. That is, the present method can be used not only for reading specific kind of optical disk, such as CD or DVD, but also other kind of optical disks, such as CD-like optical disks. In addition, the present standard capacity is 720 MB. Furthermore, the claimed embodiment defines that **the original used CD laser beam is retained if the memory capacity is not larger than the standard capacity**. The laser beam is not changed to the DVD laser beam until **the memory capacity is larger than the standard capacity**.

In comparison, Hirose discloses a method for discrimination between optical disks of different types, such as CD or DVD. However, Hirose's method is used for discrimination between optical disks of different types, not used for selecting laser beam in an optical disk drive. As shown in Figs. 6-8, Hirose's process can not be applied to CD-like optical disks, which have track size between CD track pitch and DVD track pitch. If a CD-like optical disk is located in Hirose's system, the discrimination result would be confused – neither CD nor DVD. In addition, Hirose does not disclose that **the original used CD laser beam is retained if the memory capacity is not larger than the standard capacity**. Hirose does not disclose that **the laser beam should be changed to the other DVD laser beam if the memory capacity is larger than the standard capacity**, neither. Instead, Hirose discloses that the optical disk is identified as CD if the count value is not larger than the threshold value, and the optical disk is identified as DVD if the count value is larger than the threshold value. In fact, Hirose's threshold value is not the present standard memory capacity and Hirose's count value is not the

present memory capacity. Moreover, Hirose discloses that counting the pulses number of radio frequency signals generated by focusing serve in predetermined interval determines the recording density of a disc to select a laser beam. Indeed, it would be difficult to implement Hirose's method because the radio frequency signals are not optimum. An improperly selected laser beam may generate wrong or unclear signals. Therefore, at the beginning, a wrong count value will fail to select a laser beam. In contrast, the present invention directly reads the memory capacity from the table of contents (TOC) on a disc for comparison. Accordingly, the present invention is faster, easier and more precise for selecting laser beam than that of Hirose. According the foregoing description, the method recited in Applicant's claim 5 and Hirose are substantially different. Therefore, the claim 3 is not rendered obvious by the cited reference.

According to the above discussion on the patentability of independent claim 3, from which claims 4 and 11-16 depend respectively, the primary reference, Hirose, fails to disclose or even suggest the features recited in claim 3.

As such, the claimed structure is not disclosed (nor is it taught) by Hirose. Since claims 4 and 9-20 depend from claims 3 and 5 respectively, claims 4, 9-20 are not anticipated or rendered obvious by Hirose. Accordingly, the rejection of claims 3-5 and 9-20 should be withdrawn.

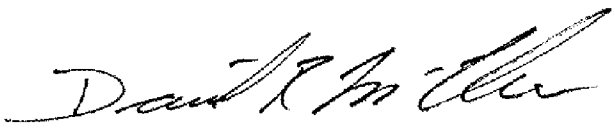
According to the above discussion on the patentability of independent claims 3 and 5, from which claims 4 and 9-20 depend respectively, the cited reference, Hirose, fails to disclose or even suggest the features recited in claims 3 and 5. Therefore, claims 4 and 9-20 are patentable over the cited reference for at least the reasons advanced above as to the patentability of independent claims 3 and 5.

For at least the foregoing reasons, it is respectfully submitted that this application is in condition for allowance. Notice of such allowance and passing of the application to issue, are earnestly requested.

If the Examiner believes that a conference would be of value in expediting the prosecution of this application, the Examiner is hereby invited to telephone the undersigned counsel to arrange for such a conference.

No fee is believed to be due in connection with this amendment and response to Office Action. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,



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